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RELIGIOUS VALUE[1]

IN the "Zend-Avesta" Zarathustra asks Ahura Mazda, "O Maker of the material world, thou Holy One! which is the first place where the earth feels most happy?" When this question is answered, Zarathustra asks, "Which is the second place where the earth feels most happy?" and so on to the fifth. Ahura Mazda answers that the places where the earth feels most happy are: (1) The spot on which one of the faithful steps when he offers sacrifice to the lord of the wide pastures. (2) The place whereon one of the faithful erects a house with a priest within, with cattle, a wife, children, and good herds within, and where all the blessings of life thrive. (3) Where one of the faithful cultivates most corn, grass, and fruit; where he waters the ground that is dry, or dries the ground that is too wet. (4) Where there is the most increase of flocks and herds. (5) Where flocks and herds yield most dung.[2]

This is an early description of religious values. It suggests that such values are relative to a people's stage of culture and to the needs that are strongly felt. What is more significant is that values are here arranged in a hierarchical order: the god, the family, the fields and the herds; or, cultus value, social or ethical value, and economic value. What is most remarkable is that ethical value is made to include economic value, and cultus value to include both, apparently without being exhausted in them.

Something like this is characteristic of the religious attitude universally. Through all the differentiations and enrichments of human purpose, a god, or some functional equivalent, has served as a concrete expression of a tendency to subsume particular values in a single type in such a way that they are not only included within it, but also raised, so to speak, to a higher power of themselves. The great religious systems differ from savage religion nowhere more profoundly than in the degree in which they thus integrate, and likewise idealize, the recognized values of life. The gods of the

[1] Read at the meeting of the Western Philosophical Association, in Chicago, January 1, 1908, as a contribution to the symposium on value.

[2] See "Sacred Books of the East," Vol. IV., Oxford, 1880, pp. 22–24.

savage lack consistent character; they represent now one, now another vagrant desire. But the great religions give character to their gods, and they strive toward some monistic conception, whether monotheism, or pantheism, or the abstract ethical monism of Gautama. Moreover, in these religions the god becomes an impersonation of a general critique of all values, with a view to raising the general plane of life.

This double character of religious value—its immanence in or partial identity with all values, and its transcendence of them as their ideal unity and consummation—this double character gives rise to two opposed notions of religious value, one of which represents it as merely transcendent of other values, the other as merely immanent in them.

On the one hand, religion is said to deal with spiritual rather than material or sensuous goods; or with eternal rather than temporal goods; or with reality as distinguished from phenomena, or with unity as distinguished from multiplicity.

The practical consequence of separating spiritual value from the values of the common life is a thirst for special revelations, submission to an authoritative church as their agent and dispenser, and priestcraft and ceremonialism as means of dealing with the merely transcendent world. When eternal good alone is recognized as religious, the result is asceticism, and the dominance of motives that grow out of contemplation of death and the hereafter. Defining religious good by the distinction between reality and phenomena tends to identify religion with metaphysics. When the distinction is that between unity and multiplicity, the tendency is toward mystical absorption and loss of personality. The obvious one-sidedness of all these types of religion arises from the effort to separate religious value from ethical, esthetic, noetic, and economic value. If the separation should ever become complete, there religiosity would pass over into irreligion.

On the other hand, exclusive attention to the other aspect of religious value, its immanence in all values, leads toward the identification of religion with the esthetic or ethical or intellectual life. In such cases the tendency, according to circumstances, is either to ignore what is characteristic of religion, or to include it by subreption. As instances of subreption may be cited the worship of beauty and the worship of humanity. That genuinely religious aspirations express themselves in these forms there is no reason to deny. But in both cases the specific religiousness is possible only through an at least momentary forgetting of the particularity of the value that occupies the foreground of attention.

Let the worshipper of beauty, at the moment of his adoration,

realize that the heavens and the earth, and all music and art and poetry and human loveliness, are merely a passing pageant, and that he himself is nothing but a part of the same pageant, the whole merely the flickering of flames that are burning themselves out—let him clearly realize this, and the value coefficient that makes his love of beauty a religion will vanish. He worships either because, dimly or clearly, he feels in the object what Wordsworth so often describes, or because he assumes a standpoint of appreciation that entirely transcends himself as a mere mortal.

Similarly, the worship of humanity may include emotions of tenderness and sublimity; it may include a sacramental communion as mystical as that of the priestly chalice; it may contain a sense of final value. Yet the object of such worship is hardly the actual men and women who come and go; rather, it is the humanity that never was on sea or land, not visible humanity, not even any future humanity that can be foreseen by sound historical imagination.

The purpose of these statements is purely descriptive, and they should not be taken as carrying either approval or condemnation. The sole aim is to set forth what sort of values men strive toward when they are religious. Whether religious men, or any of them, are self-consistent or not, indeed, whether or not the whole religious enterprise of humanity is a delusion, is not a matter of interest at the present moment.

The point that we have reached is this: Any kind of value may be a religious value, but only on condition of a certain inner self-transcendence whereby the particular value demands complete organization of itself with other values, and ideally complete realization of the unitary whole. The organization of values is what Plato calls justice, a principle that apportions the various goods and also expresses itself in each of them. Plato saw that such a principle must be identical with piety, which he calls justice in our relation to the Deity. This means, I suppose, that the inner organization and self-criticism of all values is possible only by the representation to ourselves of an ideal personality to which we ascribe authority over our actual personalities.

The complete realization of the unitary whole of values that religion seeks implies, of course, what Höffding calls the conservation of value. I can not think, however, that Höffding's notion of a possible conservation of value otherwise than in the conservation of personalities really represents the religious motive. It is true that philosophical Brahmanism, the teachings of Gautama Buddha, and the views of some pantheistically inclined minds among us represent the consummation of life as consistent with the loss of personality. But these are rather speculations of the few than religions, and I

believe that they all involve the fallacy of the man who is willing to be damned for the glory of God. As James points out, such willingness to perish rests upon an unrecognized doubling of the idea of self, whereby the man who supposes himself willing to be damned for the glory of God really thinks of himself as standing apart from this damnation and approving and enjoying his own piety! The conservation of values seems to imply—at least it is taken by religion as implying—that persons, who alone constitute social reals, who alone are ends rather than means—that persons, or at least those who have attained to ethical life, should not lose it through any unavoidable process of nature. This is really a demand that a concrete end, once reached, should really be an end, and not a mere means toward some other apparent end which in its turn shall pass away, leaving no actual social end or finality.

Further, ideal completeness of social value is represented in the notion of an ideal social being who satisfies, on the one hand, our desire to be completely understood and, on the other hand, our impulse to give ourselves in utter devotion to an object completely worthy of such ethical love.

Such desires are at once ethical and religious. So, also, the desire that social conflicts and natural evils that seem to hinder ethical ends should ultimately cease or even be made to serve these ends, is both religious and ethical. It is ethical in its quality; it is religious in the ideal completeness that it gives to ethical value. Wherein, then, is religious value distinct from ethical value? The answer is that religious value is not distinct from ethical. It is ethical value itself in its ideal completion and in union with all other values similarly ideal and complete. The sphere of religious not less than of ethical value is social life. In this social life the two refer to the same persons, facts, conflicts, purposes. The difference is that ethics, of itself, takes into its purview only a part of the social ideal that religion accepts. Ethical value and religious value are of the same kind, but one climbs only part way up the ladder which the other essays to mount to the very top.

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DISCUSSION

PRAGMATISM AND ITS DEFINITION OF TRUTH

THE present article consists of two brief papers, written at an interval of a very few days, the one before, the other after hearing Professor James's remarks in the discussion on "The

Meaning and Criterion of Truth" at the meeting of the American Philosophical Association at Ithaca, December 26–28, 1907. The papers thus represent two phases of the author's reaction to pragmatism as at present set forth, the latter of them being more closely adjusted to Professor James's conception of what is fundamental in that doctrine, and the difference in the points they select for criticism has therefore a certain instructiveness. When I add (with Professor James's consent) that, in private discussion since, we have reached what appears to be a complete agreement as to the facts in the case, he accepting the account of them given in the second paper, and that we continue to differ only as to the portion or aspect of these facts to which it is proper to apply the term truth, it will be seen that my strictures, severe as they may seem, touch rather an incompleteness which has hitherto existed in the mode in which the theory has been conceived, and the (as it seems to me) psychologizing form in which it has been stated, than its empiricist and anti-intellectualistic substance. At all events the view that the paradox of present pragmatism may be removed by supplementing it, and completing the doctrine in its own sense, is commended to readers of the JOURNAL. When its one-sided practicalism and its anti-Platonism or psychologism are corrected, there still remains, in the writer's view, a core of sound empirical theory at once new in philosophy and of lasting importance.

I

Current pragmatism is such a decidedly mixed affair, it exhibits such a combination of healthy human tendencies with questionable logic, that one must make some sharp distinctions and even turn some sharp corners in discussing it.

Truth, we are told by Professor James, "consists in the consequences, and particularly in their being good consequences."[1] Here we must distinguish between two sorts of consequences. (1) Future sensible experiences, either actual or that might have been actual if the subject had willed it. The latter case covers what Professor James calls "indirect verification." When I look at a clock I do not trouble myself to verify that it has works, but proceed on the assumption that it is a fully constituted clock and tells or means to tell the right time. So far the doctrine is simply empiricism, and I am at a loss to see what motive there is for rebaptizing it pragmatism. "Practical consequences," used of this first class of cases, is an inexact and question-begging phrase. But (2) there are the cases where we *can not* verify, and must form our judgment according to the favorable or unfavorable results of action. Here the

[1] "Humanism and Truth," in *Mind*, N. S., 1904, pp. 457–8.

unverifiability may be accidental, and due to present mechanical difficulties, or essential, as in the case of some religious truths. In either case the favorable results of action constitute only a presumption, and it can not be said that truth *consists* in these really practical consequences, but only that they are the reason why we think things true.

Here we come to a most important disjunction: between pragmatism as a theory of *what truth means* and pragmatism as an account of *why we think things true*—of what thinking things true means. Professor Dewey seems to me to give on the whole a correct account of the psychology of thinking things true. One might say that he discusses pertinently the denotation of truth, but leaves the question of its connotation untouched.

That pragmatism can not pretend to be a theory of the connotation of truth, and to give its definition, appears when we consider that consequences lie necessarily in the future, whereas the objects of knowledge are many of them present or past. Only where what is asserted is a future fact, either a physical happening or a human experience, can the future bring its verification in the proper empirical sense. Pragmatism is at its origin, I think, an account of the truth of general propositions—of physical laws and principles—which apply to the future as much as to the past, and the confirmation of which can therefore be obtained from future experience. Is it true that the attraction of gravitation varies inversely as the square of the distance—will this simple law account for the movements of Mercury as well as for those of the other planets? The future can tell us, though even if it answers affirmatively it is only by inference that we apply its deliverances to the past. Is it true that Napoleon landed in Provence on the last day of March, 1814? This is not a question for the future to answer, and it does not "depend on the consequences" whether it is true or not. The consequences can only tell us whether to think it true. Is it true that animals have souls, or are they merely senseless machines? Still less does this depend on the future. It is a question for the animals to answer now, but unfortunately they can not do so in a way logically to fix our belief. If, in a word, we take pragmatism as a definition of truth and not simply as an account of what things are true, it does not apply to assertions of particular events or particular existences except so far as these lie in the future. And, even within these limits, as we have seen, what is called pragmatism is really empiricism and not properly pragmatism at all.

Truth is necessarily a relation of some sort between a proposition and an object, and not between a proposition and our actions or the results of those actions, except so far as the actions and results

happen themselves to be the object. Pragmatists admit that some truth copies its object—the truth of evidence in court, for instance, lies in correspondence with the past, rather than in its effects on the fortunes of those present; the truth about the Antarctic regions, whether there is land or water at the South Pole, lies in copying. But this is, in effect, to admit that truth everywhere is a relation to the object, and not simply to our future acts or experiences.

Of what sort is this relation? The fundamental fact underlying cognition—and here I come to a part of the question where our judgment must be much more favorable to pragmatism—is the need for adjustment of relations to objects that promise us advantages or threaten us with danger. To adjust our relations properly we must somehow *take account* of the object. Very symbolic cognition will suffice for the purpose, provided it leads us to the right kind of practical behavior. The act is, one may almost say, a portion of the cognition. But I fail to understand how our cognition can be a symbol at all, or adjust us to *this* object rather than to another, unless it contains an element of copying, be it only of the most abstract relations. Algebra gets along with mere letters in place of numbers because it reproduces the relations between numbers with the most faithful exactness. And it is a fair question whether the secondary qualities of matter do not answer their purpose because the primary ones render more or less exactly the true relations of things; whether the atomic theory and the law of the conservation of energy are not true because they correctly reproduce the general relations of things, and not simply because they are a convenient shorthand for appearances. The phrase "conceptual shorthand" presents only one side of the matter; translate general assertions into the particular assertions they represent, and the truth of the latter becomes a matter of copying.

I should be inclined (but I can lay no claim to competency in these logical questions) to assume that wherever there is truth there is some amount of copying, however small, and that this it is which constitutes the idea a fit symbol and enables it to call forth the expedient reaction.

If so, we must maintain against Professor James that an idea *does* "shoot over the head of experience and hit its reality"—not "every time," but every time that it does hit it. The conformity of idea to object in which truth consists, and which is the indispensable basis of right action, is simply one of those high-leaping or, as they might be called, saltatory relations which, like similarity, pass direct from one existence to another, and do not have, like relations of space and time, to run along humbly through the tissue of experience. To seek to resolve truth, metaphysically, into processes of

leading and arrival, into unbroken concrete experience, is to eliminate and suppress the Platonic or ideal element in things. Are not objects really similar before they are discovered to be so? Is not an egg really like another egg, or a circle really like another circle, even though no spectator experience the pleasant surprise of comparing them? To deny real similarity preexistent in things, to seek to resolve it into somebody's experiences of comparing and equating, is to turn the logical into the psychological.

Now the enterprise of the pragmatists is at this point slightly ambiguous. Do they mean to maintain simply that the similarity of similar things is a matter of concrete experience, yet so that the things always provide for us in advance a similarity which we *must* detect in them—which would be a comparatively venial fault; or do they mean to maintain that the logical relations of things (past and present things at least) are not antecedently fixed, and to say in so many words that there's nothing either true or false but thinking makes it so? In their own interests I venture to hope that their position is or will be decided to be the former.

There is, then, and will be for the pragmatists if they decide this weighty issue aright, a standard in things, which is independent of anybody's cognitive experiences, and this is what I understand logicians to mean by the absolute. In other words, pragmatists if they reach grace will make their peace with the absolute.

Pragmatism will still stand firm in at least five senses: (1) as a protest against converting this standard into a psychological being, or giving to it any other existence than that which it has as resident in fact; (2) as an account of the psychological processes by which we decide whether given propositions are true or false; (3) as a warning against making these processes too short and easy, and against confounding the fixity of truth with the fixity of our present conceptions of truth; (4) as a needed reminder that cognition exists for the sake of action, and requires in ordinary cases to be no truer than just sufficiently to evoke the right behavior; (5) as a defense of the important and too much neglected truth, that human action can affect and modify the future.

II

Professor James would have us discuss the problem of truth without any metaphysical presuppositions, simply on the basis of ordinary conceptions. What is the relation between this desk which I shake, and the idea of the shaking which I form in my mind—the relation in virtue of which this idea is said to be true?

I am not so sure that the problem can be quite freed from metaphysics. For the question of truth arises twice: in connection with

the relation between an idea and the corresponding experience, and in connection with that between the experience and the object. Only on the assumption that, in the latter case, experience and object are identical is this not so; an assumption, I am convinced, erroneous and responsible for many of what I can only call the vagaries of current pragmatism. If we consider that an idea is in its turn an experience and that the corresponding sensible fact is its object, we may say that truth is in every case a relation between an experience and an object.

A relation of *validity*. And that which is valid is the cognitive reference of the experience to the object, the transitive or transcendent relation by which the experience pretends to be *of* the object and a satisfactory basis for action with regard to it even in advance of being put to the test of future experience. Cognitive reference is thus logically prior to truth; and the campaign of the pragmatists may more truly be said to be against a non-empirical and intellectualistic conception of cognitive reference than against such a conception of truth.

Cognitive reference, again, is a relation supervening upon the purely *existential* relations between experience and object, which latter are prior and more fundamental. And, since this is so, there is a fair presumption that the problem of the existential relation between experience and object, the question of the nature and limits of the independence to be ascribed to the latter, may not be indifferent to the problem of the nature of truth.

There is much significance, then, in Professor James's declaration[2] that his theory is based on a thoroughgoing epistemological realism—on the view that cognition and object are distinct and separate existences. And his problem is to bridge the gap between them, in such a way that the cognition may truly be said to have to do with or be *of* the object, without appealing to a mysterious faculty of self-transcendence, of a different order from the concrete experiential things it unites. This can only be done by the aid of the *context;* by taking account of the existences that intervene between experience and object and connect them into a single world. An idea and an object that were the only existences, and that swung, as it were, *in vacuo,* could, as he rightly says, have cognitive relations only by a mysterious leap of the idea towards the object.

So far I am entirely at one with Professor James, and the criticism I am going to offer may therefore be said to be from his own point of view. My contention is that he takes too narrow a view of this connecting context, restricting it solely to future occurrences and ignoring the past and present connections that make

[2] Made in opening the discussion at Ithaca.

the idea *already* a fit cognitive substitute for and a thing pragmatically aimed at the object; that he and his followers are thereby led into a paradoxical form of statement of his theory that drives sensible people along with intellectualists to the opposite view, as being alone consistent with common or rather with good sense.

1. There are the *causal relations* by which the cognition has been called forth by the object, or by other objects of the same kind, and which secure that the image is a fit symbol to represent the object and to set going the reactions appropriate to it. Thus a memory is the effect of the experience it recalls, the idea of any fact (*qua* image and not *qua* concept) the effect of previous encounters with that fact, etc.

2. There are the *spatial relations* which at present connect the object (if it now exist) and the cognitive experience, or at least the brain-event with which that experience varies uniformly, and which hold the two, so to speak, in relation to each other, much as the spatial relations of intervening objects hold a well-aimed gun in relation to the mark it is going to hit.

3. Resulting from the causal relations, there is the *resemblance* (running from portraiture to the most abstract symbolism) which makes the image the right one among all our images to let loose the action pertinent to *that* object. Call it correspondence, conformity, relevancy—what you will: I am not contending for an abstract connection irrespective of facts, but for the particular connection, the particular form of resemblance or correspondence, which the totality of the facts, when considered in their concrete *whatness,* found. And I fully admit, and indeed expressly contend, that the abstract relation depends for its entire content on the concrete complexion of the facts, and is tied down to them, and neither operates on nor in any way determines them from without, being a mere expression of what they are.

Such, then, are the connections for the recognition of which I call, and which antedate and make possible the connections by which the idea (in some cases) leads up to and verifies itself upon the object. The pragmatist contention as at present formulated is as if one should say that the correctness of a sportsman's aim is not merely proved by, but consists in, his actually hitting the bird. But, surely, it consists rather in his holding his gun at a certain angle, such that, given the laws of physics, the bullet or shot must pass through the body of the bird. To contend that the aim is *made* correct (truth, we are told, is something "made") by the process of hitting, and that if it were not for this subsequent process there would be no sense in saying that the sportsman aimed correctly at

all, is to maintain a violent paradox, which must discredit one's theory in the eyes of sober and sensible men.

Pragmatists, in short, not content with emphasizing the important truth that knowledge is designed for and is incomplete without action, have gone to the extreme of maintaining, in effect, that there is no knowledge apart from successful action at all. To theoreticalism they have replied, not by defending the equal claims of the practical, but by a practicalism as exclusive as was the doctrine opposed. Such a practicalism is in effect either skepticism or agnosticism—whichever you please. If it treats the independent object as non-existent, it is skepticism. If it treats it as unknowable and negligible, it is agnosticism. It shares with Berkeleianism and post-Kantian idealism the defect of almost the whole of modern philosophy, of supposing that an experience can reveal only itself, or, if it reveals anything beyond it, can reveal only an unknowable ultra-mundane entity, and not another experience, a part of the same world to which itself belongs.

III

While Professor James and I now agree as to the facts, I fear some serious disagreement still exists between us as to the proper naming of them, and particularly as to the *locus* of the thing named truth. I seem forced to say that truth is predominantly at least a matter of resemblance or copying, and that what is additional to this is rather to be accounted as utility than as truth. He seems to take truth in a large sense in which it ceases to mean something true about the object, and signifies mere adaptation to it; any view is true that helps us to act rightly, whether it conveys anything about the object or not. (To help us to act rightly, it must, of course, at least convey or imply something about the object's relations to us; so that perhaps one might say that he conceives truth as having to do with the object plus its relations to us, I as having to do solely with the object.)

It is important, as was observed before, to distinguish between pragmatism as a theory of objective reference and pragmatism as a theory of truth. I agree with him that the reference of the idea to the object can not be established without taking account (ideally, at least) of the totality of concrete connections, including the workings; but I should say that truth lay not so much in the causal relations by which the idea is called forth or in those by which it works, as in that relation of correspondence which makes it possible for the idea to work—or rather (this is an important addition) *in the relation of correspondence plus the spatial or mechanical relations that hold idea and object in position towards each other.*

Suppose the world should come to an end at this moment: would my idea that Cæsar was assassinated on the Ides of March be any the less true because by hypothesis it can have no consequences? *The example shows that truth consists rather in the potentiality of the consequences than in their actual occurrence. Now this potentiality, when you consider it, is exactly equivalent to the relations of space and of correspondence which predetermine what the consequences shall be.*

Truth, then, is anterior to the consequences, and does not consist in them.

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THE SUBCONSCIOUS AGAIN

IN the issue of this JOURNAL under the date of January 30, 1908, Dr. Prince gives me a severe trouncing for my misunderstanding and misinterpretation, as he thinks, of Professor Janet's position as expressed in my review of the latter's contribution to the symposium on the subconscious published last year in the *Journal of Abnormal Psychology*. Now, while I am temperamentally averse to indulging in rejoinders to hostile critics, the charges against me are made so robustiously and are based upon such thoroughgoing misconceptions of what I actually said that I can not altogether keep silent. I quite heartily admire the spirit of martial vigor with which Dr. Prince has come to the support of his foreign colleague, and it may have been his very zeal that led him astray. One almost despairs at times of securing mutual understandings in controversial writings, but I can hardly think that my text was so obscure as to be entirely responsible for the error into which Dr. Prince falls of attributing to me opinions about Janet the entertaining of which would convict me of unpardonable stupidity. In the face of these confusions I fear that in future I can not altogether suppress a feeling of diminished confidence in this writer's various reports and discussions.

In the first place, Dr. Prince is misled at the very outset into confusing the unlabeled characterizations which referred in a general way to the several papers of the symposium, and applies to Professor Jastrow's paper the remark that was directed entirely to that of Professor Janet. Then with the erroneous notion in mind that I was regarding Janet as "probably to be reckoned on the side of the opponents" of the subconscious, Dr. Prince proceeds to distort my further remarks into an assertion of the belief that Janet has

now recanted and has thrown over his allegiance to the psychological interpretation of the subconscious; and he expresses bewilderment at my placing of Janet among those who accept the physiological interpretation. No such belief was ever in my mind or was ever expressed by me. That Janet was referring to the "subliminal" type of theory, and not to the mode of interpretation now known as "psychological," was as obvious to me as to Dr. Prince. The fact was clear enough that Janet disowns as his (disavows) all theories, whether subliminal or such as touch "the great problem of the connections between soul and body, between thought and brain," preferring not to be embarrassed with speculations in the face of the many clinical problems which seem to him to press forward for solution and to be of paramount importance. Moreover, if Dr. Prince will now be good enough to give Professor Janet's paper a careful rereading, I think he will find that the inconsistency with which I charged it is not the consequence of my own misreading, but is to be found in the paper's own structure. As an instance of this, is it not a glaring inconsistency to state in one place, as Janet does, that the word "subconscious" is "a simple clinical observation," and in another place to argue that back of the phenomena of somnambulism, automatic writing, and allied matters we must suppose a consciousness because the actions involved are like those which in normal persons are conscious? Observation is not interpretation and interpretation is not observation, and any scientist who confuses the two in his writings must stand convicted either of intentional evasion or of inconsistency of thought.

As to whether I have erred in my understanding of Professor Janet's position is a matter which I will not undertake to discuss here. Such a discussion would be of slight interest to more than two persons. Moreover, it must be remembered that I was not discussing Janet's position as such, but was only reporting and commenting upon the exposition of it contained in this particular paper. After a careful rereading of this and after a reconsideration of the entire matter, I am quite ready to abide by my characterization of Janet's paper as given on page 526 of Vol. IV. of this JOURNAL.

I wish now to take advantage of this occasion, if I may, and broach one or two matters which seem to me to merit serious discussion.

Dr. Prince is convinced now more than ever that only those who have a first-hand knowledge of pathological phenomena are qualified to take part in a discussion of their interpretation, and he uses the illustration of the Martian canals to elucidate his point. "What would an astronomer say to my views on the canals of Mars," he writes, "when I had never even seen the lines on the surface of that

planet through a telescope?'' Now this illustration, it seems to me, is particularly apt as making for the very view against which Dr. Prince is contending, and I can not refrain from developing it a little. Suppose, then, that the astronomer puts forward in explanation of the Martian markings some theory of the distribution of water from the melting polar caps which meets the eye of an hydraulic engineer. The latter regards the theory as irreconcilable with the principles of his science and forthwith exhibits the unsoundness of the astronomer's position. Is the hydraulic engineer estopped from meddling in the matter because he has never viewed the surface of Mars through a telescope? And if he did view the planet and study its photographs, would he be a bit better equipped to pass judgment on an interpretation of the canals which involved problems in pure hydraulics? It is knowledge of hydraulics and not knowledge of astronomy that would wield the master hand in this matter of interpretation.

Now, it is well-nigh impossible for all of us who are modestly trying to be psychologists to become at the same time first-hand gatherers and testers of pathological facts. In many ways this is to be regretted, of course. But when a pathologist makes use of a psychological interpretation of his facts, he is treading on our territory and is dealing with matters in which we claim to have a certain amount of expertness. And have we not the same rights as the hydraulic engineer to squirm and protest when the pathologist seems to do violence to psychological principles? Of course I do not for a moment mean to say that a pathologist, or any other scientist, should confine himself to the mere gathering of facts. Every one should engage to his utmost in interpretations and explanations, for without these the getting of facts would be but an unilluminated routine. But what I do wish to insist upon is that when the field of interpretation is psychological the psychologist has full rights to play the critic, provided, as I have elsewhere said, he can trust the collector's facts. About this last point I shall have something further to say in a moment.

In commenting on my treatment of his own contribution to the symposium Dr. Prince expressed surprise that I ''overlooked the force of the evidence summarized in the third, fourth, fifth, sixth, and seventh classes of evidence'' which he brought forward. Now, while I did probably do Dr. Prince an injustice by neglecting to state that he presented several considerations drawn from as many diverse forms of automatic writing, I considered that my criticisms against the unwarranted worship of *continuity* were applicable in large measure to these cases as well as to those that preceded them. But I had a further reason for not discussing these cases. It seemed

to me a waste of effort. When I read such accounts of automatic writing, I have a feeling somewhat akin to that which I have when a person comes to me and after giving a vivid description of the doings of some spiritualistic medium triumphantly asks how these doings are to be explained without the supposition of spirit manifestation. My usual reply in such instances is that if events happened in the way described nothing short of a miracle can explain them. There are two principal reasons why I have this feeling when reading accounts of automatic writing. In the first place, I have long been disposed to think that reporters of automatic phenomena have been wont to display an artless naïveté towards the statements of their subjects which is almost as great as that of the investigators of spiritistic phenomena who refrain from searching the persons of those under investigation for fear of seeming to impugn their good faith. In saying this let me not be supposed to mean offense to any one in any way. But in my opinion just this needs to be said by some one. One does not feel that the bare facts of the case have been presented in their sheer nakedness. One is almost certain that inferences—apparently slight, but, perhaps, crucial in their import—have been mingled with the facts. The special infusion of inference with fact that I have here in mind is such as occurs when the assertions and denials (usually the latter) of the subject are taken at their face value as representing the subject's actual experience. And, what is the real misfortune of the matter, the account states: "the subject did not notice this," or "the subject knew nothing of what preceded," instead of what was probably the fact, namely, that the subject *said* she did not notice this, or *said* she knew nothing of what preceded. If space allowed, many an illustration of just this thing could be cited. An instance occurs near the foot of page 73 of Dr. Prince's paper in this JOURNAL, where one reads: "After finishing, it was found that she had not noticed the figures." Now, the denials of hysterical patients, or of other highly suggestible subjects, that perceptions and thoughts were present are hardly to be taken as evidence that such forms of consciousness were not experienced. It is to the highest degree probable that the subject knows well enough that some sort of an investigation is in progress, that her general attitude of mind is that of ready complacency and cheerful willingness to assist the investigator in every possible way by reporting to him those very things which he is most eager to find, and that the very questions of the experimenter either suggest the shade of reply expected or act as powerful suggestions which inhibit the power to recall many important states of consciousness which were actually experienced. Indeed, as a matter of fact, it seems too often as if the subject were now regarded as a stupid automaton

who could not possibly suspect that something was up, and at the next moment as one whose introspective deliverances were to be accepted as unquestionable, accurate, and final. It would be absurd, of course, to claim that the pathologists are blind to these and other possibilities of error and deception, but certainly many of their writings are calculated to create the impression that they are allured by the charms of a dramatic narrative away from the pursuit of the relatively insipid details.

When, therefore, one is challenged to explain reported cases of automatic writing (or cases of other so-called subconscious phenomena, for that matter) on any other hypothesis than that of a coactive consciousness, one is thrown into the state of mind to which I referred above as taken, and quite appropriately taken, towards reports of mediumistic performances, to which may be added many accounts of sleight-of-hand exhibitions, and many anecdotes of animal behavior which purport to prove the capacity of brutes to reason.

But, in the second place, not only is it true that many reporters of hysterical and other automatisms reveal an unwarranted artlessness in accepting their subjects' statements as scientific verities, they err also, I am convinced, in giving us only a fragment of the entire situation. In reading their accounts one may well be smitten with the sense of an unfinished narrative, of a story not all told. I can illustrate what I have in mind by reference to a fresh case of automatic writing which Dr. Prince brings forward in his paper in this JOURNAL, already referred to several times. The attempt is made to prove that the subconsciousness of the subject is engaged in arithmetical activity while the primary consciousness is fully occupied with other matters. Briefly stated, the case is this. *BA* is a double personality, *B* knowing *A*, but *A* being ignorant of *B*. When hypnotized *B* becomes *b*. Both *B* and *b* claim to be coconscious with *A* when *A* is uppermost. Now, it was arranged with *b* that she should subconsciously calculate the number of seconds intervening between two given times of the day, this to be done, of course, while *A* was in the ascendency. *A's* attention was to be engrossed by the writing of some familiar verse, and the figures on the basis of which the subconscious calculation depended were to be written "unobtrusively" on the margin or in the corner of the sheet used by *A*. The agreement is carried out. *A* writes the verse, talking in a lively fashion the while, and simultaneously the hand automatically writes the result of the calculation, which was to find the number of seconds elapsing between 1.43 and 3.39. To be sure, the result was incorrect, because of an error of two minutes in the first subtraction, but the multiplication by 60 in the reduction to seconds was correctly performed. But now one would like to know many things which

the account does not give. Did the subject's eyes turn at any time to the unobtrusively written figures? If not, how near to the latter was the nearest portion of the writing? Did *A* have no suspicion that something in the nature of an experiment was being performed upon her? Did she have any curiosity as to what was going on or wonder why she had been set to write a bit of verse? Was there no fleeting consciousness of the hand's activity, followed, perhaps, by complete amnesia of it? Was the subject accustomed to make this variety of calculation, not necessarily in the course of similar experiments, but in general, in the ordinary course of her experience? When the hand was told that it was wrong (as it was told), precisely what happened? How, that is, is one to figure the mechanism of addressing a hand and carrying on a conversation with it? In such cases as this does the primary consciousness know of the conversation, at least to the extent to which an outsider overhears a telephone conversation? These and similar questions one would like to have answered, for it may be that if *all* the facts were given the mystery would be as much reduced as when we have the full and true account of the performances of a Hermann or a Kellar.

Of course, the replies to several of the above questions are practically unobtainable, for many flashes of consciousness, perhaps of the utmost significance for the hand's activity, may have been experienced by the subject and then immediately and irrevocably forgotten. If this subject was as alert as the account states, it is not altogether rash to assume that a good deal was going on which inevitably failed to get reported. However this may be, the real point is that the investigator has no right to assume that the subject's report of her own consciousness is an accurate report of the total experience that this primary consciousness has passed through.

Furthermore, just how is one to understand the process by which the two coexisting consciousnesses share the same sense organ, as in this case they did the eye, and as in many of Janet's cases they do the ear? In this case was the subconsciousness using the periphery of the retina for seeing the figures, and if so, at what favorable moment was this act of subconscious vision carried out? It must at least have been when the eyes were at rest, for not even a subconsciousness, I presume, could read what was cast on the periphery of a moving retina. In Janet's cases were sounds so selectively received by the ear that whispers reached only the subconscious, while ordinary tones of voice were received by the primary consciousness? I am not aware that the mechanism of this sorting out of the materials of perception has ever been discussed by the advocates of the subconscious, yet it seems to me to be a matter of some considerable importance, and there may well be facts in this connection which would prove of moment.

What I have said will suffice, I think, to suggest some of the difficulties and perplexities which confront me when I read the various claims made for automatic writings as evidences for the subconscious. It is the conviction that there are still many unknown quantities in the matter and that these very unknown quantities may themselves be the key to the whole problem, that I feel the futility of endeavoring to find a fully satisfying explanation for the cases of automatic writing thus far reported.

Of the many forms which theories of the subconscious take in the hands of its various advocates I am quite free to admit that Dr. Prince's variety is the least unacceptable of them all. He has pruned away the sundry extravagancies which are in so many cases but products of a riotous imagination unrestrained by sober facts. There is no tang of the mystic "subliminal" about his theory, nor, if I understand him, does he believe that each and every one of us is attended by a subconsciousness which does much of life's business for us.[1] On his theory, again if I understand him, the manifestations of the subconscious appear predominantly in pathological cases or under conditions of artificial dissociation. Furthermore, it is explicitly recognized and acknowledged by Dr. Prince that the subconscious is a product of scientific interpretation and not a fact of observation.[2]

In the issue of this JOURNAL of February 13, 1908, Dr. Marshall suggests that the word "subconscious" itself is partially responsible for the lack of agreement between advocates and opponents, the latter being "accustomed to think in terms of consciousness as the equivalent of awareness," and having "never gone beyond the objection that to speak of subconscious consciousness is a contradiction in terms." Now, I am entirely sure that in saying this Dr. Marshall has quite misapprehended the situation. Dr. Prince has been so careful to state that he prefers the terms "coconsciousness" or "coactive consciousness" that only a careless or casual reader could fail to grasp what he at least has in mind. I can not think, therefore, that any clarification of the situation would be introduced by the terms suggested by Dr. Marshall, "inattentive consciousness" or "subattentive consciousness." Indeed, in point of fact—though I have no right to speak for them—I do not believe that these terms would be acceptable to the advocates of the subconscious; for in their view the latter is not only a detached coconsciousness, but often a coattentive consciousness as well. But I quite agree with both Dr. Marshall and Dr. Prince that in discussions of this sort the word "subconscious" is unfortunate. Personally, it seems to me that

[1] See *Psychological Review*, Vol. XII., pp. 126–139.

[2] See *Journal of Abnormal Psychology*, Vol. II., pp. 68–69.

Dr. Prince's term "coconsciousness" is the least ambiguous expression for what is meant in these discussions that has yet been suggested.

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REVIEWS AND ABSTRACTS OF LITERATURE

Zur Einteilung der Wissenschaften. C. STUMPF. Berlin: Reimer. 1907. Pp. 94.

This monograph naturally invites comparison most immediately with the utterances of Wundt and Münsterberg under the same title. The results of such comparison can not be simply drawn off, however, in statements of this sort: that Stumpf holds psychology to be inseparable from philosophy; that he denies it a place among the natural sciences; that he makes it the fundamental member of the group of *Geisteswissenschaften.* The meaning of these propositions is indeterminate apart from the whole scheme, which seems worth presenting in some detail.

The most superficially noticeable thing about it is its rejection of the attempt to put the sciences into a unitary system. Stumpf sets up at the outset a canon of historical responsibility which forbids it. The sciences are—among other things—empirical existences; and neither their relative importance nor their characteristic differences can be done justice by a simple branching tree. It is not the lines of division of actual scientific labor that we are bound to respect—no one transects these more lightly than Professor Stumpf—but we must respect the domains of the sciences themselves, which cross and overlap. History is not wholly other than politics, physics is not purely a science of laws as opposed to particular facts, etc. Stumpf makes use of five independent principles of division.

In no case, however, are sciences divided on the ground of method. Methods and problems, the author observes, are circumstances which depend on and vary with the subject-matters: the ultimate divisions of science will, accordingly, follow the ultimate divisions of *Gegenstände,* the objects of conceptual experience. (1) The distinction between physical and psychical objects is the ground upon which sciences have "von jeher" been divided as sciences of nature and of spirit, *Natur-* and *Geisteswissenschaften.* This division is, indeed, incomplete; there is a series of "neutral sciences," four in number, not concerned distinctively with either kind of object; but it is well that they should be thrown into just this relief. For *Phaenomenologie* (the theory of *Erscheinungen* as they appear), *Eidologie* (the theory of structure of logical systems and value systems), and the general theory of relations may properly be termed *Vorwissenschaften,* constituting as they do an organon for every other science (p. 39); whereas metaphysics, the *Nachwissenschaft,* presupposes and unifies the results of all other sciences. (2) If we distinguish objects as individual and general, and the sciences thereby as sciences of fact

and sciences of law, we provide a place in the former category for history. (3) To place mathematics we must separate homogeneous from non-homogeneous objects; the homogeneous object, the object of mathematics, being defined as a whole whose parts show only a single kind of difference, and can thus be conceptually substituted for one another by a single type of variation (p. 78). (4) The difference between theoretical and practical science is likewise a difference of object. The distinctive concern of practical science is not with objects that are, but with objects which at once ought to be (the *Werte,* by definition) and are realizable. (5) The unity of the several sciences which we include in philosophy can be expressed only by a further dichotomy of objects. Philosophy deals with the "most general" objects. But this bond is insufficient apart from the fact that all philosophical disciplines depend upon psychological materials and results. Philosophy is thus to be defined as "the science of the most general laws of the psychical and of reality *überhaupt.*" This definition, which represents philosophy as a *Gesetzwissenschaft,* is subject to the reservation that the history of philosophy is an integral part of philosophy itself (p. 92). So much for the surface of the scheme.

This surface is a fairly consistent product of the theory of knowledge here at work. We are struck by the frequency with which these divisions of science are run back to ultimately "given" differences in cognitive experience. Objects, indeed, are not given, they are results of concept building; but the difference in objects may be traced to ultimate differences in the material for concept building given in experience. The difference between physical and psychical objects, for instance, has its root in a duality in immediate experience, that, namely, between the stuff, the *Erscheinungen* (the primitive phenomena of sense and feeling) and the *psychische Functionen* which have these *Erscheinungen* as their content. In every consciousness, the ultimate stuff of experience and the psychical activity immediately concerned therewith are two disparate, indissoluble, given facts (p. 10). Similarly, the distinction between individual and general objects is taken as given. We observe individuals; we also observe species, universals. With this simple refutation of nominalism goes the possibility of escaping psychologism as well as apriorism. Psychologism is simply the inheritance of the older empiricism. It has no way of treating "ideas," including the ideas we call norms, except as things of life, having causes, births, temporal careers, and deaths. To the old apriorism ideas were nothing but eternal meanings. To Stumpf and a considerable group of writers, among whom Husserl is the most thoroughgoing, they are neither one thing nor the other precisely; they are observable facts, they are phenomena, they are persistent objects in a world of like universal objects. They are not, indeed, independent phenomena of the Platonic type, for they do not exist except as the contents of psychical functions; whence, however free from genetic psychology logic and ethics may become, it is folly to consider their governing ideas in independence of descriptive psychology. Precisely as in immediate experience psychical function and *Erscheinung*

are given together, so in thinking and willing there are given together the function and its governing idea. Stumpf thus finds himself able to bring logic and the theory of values together under the head of eidology, the science of ideal structures (*Gebilde*), the "sachlichen Korrelate psychischer Funktionen" (p. 33). So, further, the distinction between terms and relations is a given distinction. Relations are neither terms nor forms of thought: "Die Aehnlichkeit ist nicht ein Vergleichen, das Ganze nicht ein Zusammenfassen." Relations are observed with the terms; they are objects of coordinate rank (p. 37).

This tendency to rest upon irreducible differences in experience is of a piece with the anxiety to avoid presuppositions. The author will not deduce, but report, his system. He consistently objects to the use of such metaphysical criteria as "overindividual" to mark off groups of objects (p. 34). But the comment seems justified that what we are relieved of in metaphysics is made up in the strain imposed upon our eye for the given, and at the further cost that none of our questions are answered. A "phenomenon" is a finality about which, when it is reported, nothing more can be said. There is, indeed, an aspect of every object of thought which is unique, and has, therefore, to be taken as given—but this is just the aspect that is worthless for definition. We become empirically perfect and empirically dead at the same moment; there is a certain meaning-blindness which comes of the very stress of the resolve to be utterly objective. And this is true even if we avoid the ironical fate that dogs this type of thought—that of discovering objects where there are none: whence among the students of pure experience there must always be as much diversity of opinion about what is given as among the old apriorists about what is self-evident. It is not impossible that all these dichotomies upon which Professor Stumpf depends are really given; but the only way to make sure of it is to deduce them.

It is fair to say that this necessity is partially recognized. The distinction between physical and psychical objects, for instance, is a matter not only of disparate material, but also of different concept building; and the concept building is different because the problem is different. But clearly all derivation of the peculiar object of a science from its peculiar problem is at the expense of the maxim that sciences are primarily distinguished by their objects. Hence Stumpf, having derived his object, carefully purges from it all trace of the process by which it is found. The problem of physics is the complete causal formulation of the flow of *Erscheinungen;* to accomplish this it is driven to build concepts from which the quality of the *Erscheinungen* is eliminated (pp. 12–13). It is led to define a world of objects, self-sufficient, independent of consciousness, a world to which the fact of sensation is accidental, indifferent, unaccountable. The business of physics is with these objects; that is to say, it has nothing to do with sensations. The circumstance that it takes its beginning in and makes its report to sensation plays no part in its procedure. The situation is paradoxical, but if we define science in terms of its object alone there is only one thing to do. Stumpf accordingly repudiates most explicitly that conception of physics which with

Berkeley, Mill, and Mach makes its responsibility to sense experience the core of its definition.

Physics and psychology are thus simply independent. They have even a buffer science between them. For psychology, concerned as it is with the psychical functions solely, not with their contents, has no more than physics to do with sensations as *Erscheinungen*. The description of sensations and sensation series, the formulation of their purely immanent laws of contrast, harmony, etc., the investigation of the properties of the phenomenal spaces of touch and sight (in no sense identical with the space of geometry, nor with the very different space of physics—pp. 65 ff.), also of phenomenal time—all this volume of scientific labor falls to a neutral science, the *Phaenomenologie* aforesaid. It is true that the complex sciences of nature, especially of organic nature, make free use of sense qualities in their definitions (p. 19); and that the complex sciences of spirit, *i. e.*, the sciences of society, of the state, of language, religion, and art, defined as sciences of complex psychical functions (p. 21), have to recognize important physical factors in their materials (p. 23); but in each case at the nucleus lies either a psychical or a physical object, and this furnishes differentia enough.

In the case of history, again, Stumpf relies on the motive of a science to determine its object, and then defines the science by the object pure and simple. The contrast between law and fact is ultimate and irreducible (p. 62); a fact is simply a truth which is not necessary. Whether there are any sciences of pure fact depends on whether it is possible for a pure fact to have any value. And that such may be the case the history of historical investigation is called to witness! History is not concerned to deal with every fact, but with the facts regarding the temporal realization of values: these facts are themselves of immediate value. It is not inconceivable that "historical laws" might be formulated—what interferes is not human freedom, but the complexity of the situations—but even were this accomplished these laws would segregate away from a residual mass of fact; and the fact would still be the proper object of the historical spirit. As an "immediate value" is presumably a value for which no reason can be given, our understanding of history remains at this point, that a given interest and a given field of objects have happily met.

It seems to me a distinct merit of this treatise that it shows so clearly the impossibility of bringing unity into our conceptions of science with the object as principle of division. Unless we go at once to the truth, and say that every science has one unique individual object—physics, the material world; history, the spiritual content of time; etc.—if by the objects of a science we mean the unit terms of its various hypotheses, nothing is more certain than that the fields of science overlap. There can be no private property in the small fry of science. We merely escape absurdity by admitting at once that history and economics, acoustics and art, logic and mathematics, have much *language* of this sort in common, and tend to have more. But this fact seems of itself a sufficient criticism of the theory that the object *per se* can throw adequate light on the

relations of sciences: if the field of objects is criss-crossed in different directions it can only be in the interest of different problems. Is it not time to discard the assumption that, given a field of phenomena, there are to be recited an invariable set of problems that *go with it*?

But the reviewer is guilty of some disproportion in giving so exclusive attention to the first principles of a work in which second principles and fine observation are the prime movers.

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Orientation in the White Rat. HARVEY CARR and JOHN B. WATSON. *Journal of Comparative Neurology and Psychology,* January, 1908. Pp. 27–44.

This study presents the results of experiments on the white rat under two sets of conditions. First, rats that had learned a labyrinth path were started at one of three different positions fairly well along in the course of the maze, and were sometimes headed in the right, sometimes in the wrong direction; the object being to study their methods of correcting their orientation and picking up the right path. Secondly, again after the animals had learned the path, "certain of the runways were either shortened or lengthened. The disturbing effect of these alterations upon the rats' conduct and their methods of learning to adjust themselves to the new conditions were observed."

1. In answering the question as to how a rat set down with the wrong orientation can correct it and take up the labyrinth habit at a point other than the starting-point, the authors make two assumptions: on the one hand, that kinesthetic data alone may suffice to orient a rat, and, on the other hand, that if the animal does orient himself by kinesthetic data, he will require a period of random wandering about before the proper cue is obtained, longer than would be necessary if orientation were secured by some "distance sense." The first assumption is based upon Dr. Watson's former experiments on the white rat, in which it was shown that individuals deprived of sight and smell could learn a maze as well as normal individuals. Just here, without questioning the main point at issue, a word of comment may be interpolated. The argument from defective to normal rats is based, the writers say, upon the supposition "that the processes employed as control by the defective rats are the same as those which would have been employed by them had they been normal." This supposition seems to the present reviewer to be an unsafe one. What the performances of the defective rats show is that normal rats probably *can* learn a labyrinth by kinesthetic cues alone; it does not show that they *do* depend wholly upon such cues. However, in the present research the authors need to show merely the possibility of kinesthetic guidance. The second assumption, that orientation only after a period of random running about will indicate the use of kinesthetic cues, though recognized by the writers as not absolutely self-evident, may pass as probable.

The results showed that orientation was not immediate, but that "on the average, the rats turned around 2.5 corners in each trial before being able to pick up the cue," and that "inside the alleys, they changed the direction of exploration 1.3 times per trial." There were, indeed, a few cases of immediate orientation, the greater number having been made by two out of the eight individuals tested, and during the last half of the experiments. It is concluded that most of the cases of orientation were probably through the use of kinesthetic cues, that two of the animals may have used distance cues, and that there was some evidence that immediate orientation might be acquired by repeated experience of the situation. It is a puzzling problem that is presented by this process of *learning* to make immediate orientations. If a rat, on being put down at a certain point in the maze with his head the wrong way, immediately turns and starts out in the right direction, can it be a kinesthetic cue that makes him turn? How can he get a kinesthetic cue before he has made any movements? We should have been glad to have the inner aspect of this learning more fully discussed. Two of the eight animals, by the way, were blind, and showed no difference in their behavior on that account.

2. When, by the removal of the middle section of the maze, four of the alleys were shortened without in any other way affecting the path, rats that had learned the labyrinth in its previous state were much disturbed in traversing it. They ran headlong into the wall at the turns in the shortened passages, and on later trials made errors, hesitated, and attempted as a "compensatory adjustment" to make the turn too soon. After they had fully learned the shortened maze, the missing section was replaced, and the rats then tried to make the turns in the lengthened alleys at the point where they had turned in the shortened path.

The general conclusion drawn by the authors from their experiments is as follows: "When an automatic series of movements in man is disturbed, the 'movement to come' can no longer be released by the afferent impulses arising from the movement just effected. Visual, auditory, or tactual impulses (cues) are then utilized, *i. e.*, the adjustment becomes, *e. g.*, momentarily visual-motor. A few movements made in response to these distance sense cues may suffice to restore the kinesthetic-motor character of all the ensuing adjustments. Likewise, when an automatic series of acts in the rat is disturbed, the 'movement to come' can no longer be released by impulses arising from the movement just preceding. But at this point the analogy between the behavior of rat and man breaks down. The former apparently has no well-developed distance sense cues," but "the rat has the possibility of receiving kinesthetic cues which function for 'control' exactly as do visual cues in man." These kinesthetic cues the rat receives "by traversing at random any 'unit' of the maze." "On this supposition, man's kinesthetic-motor habits would differ from the rat's mainly in this, that whereas the former utilizes distance sense cues for reestablishing automatic adjustments, the latter utilizes kinesthetic cues."

These experiments certainly furnish interesting evidence of the

function of kinesthetic factors in the rat's behavior. But it seems to the present reviewer that the authors' conclusion rather overemphasizes the difference between man and the rat in the matter under consideration. On the one hand, they report an observation that leaves open the possibility of the rats' having at a certain point been influenced by a visual cue. This observation was as follows: In the shortened maze, the six normal rats had no difficulty with one of the turns, while the blind rat "found as much difficulty with this corner as with any of the others." Now before reaching this particular turn, the rats had to pass a certain *cul-de-sac* opening, *B*. Could the normal rats have used this opening as a visual cue warning them of their approach to the turn, a cue which the blind rat must, of course, have lacked? There was another turn which was preceded, so to speak, by a *cul-de-sac* opening, *H*, and with this turn the normal rats did have trouble, but the writers point out that the *cul-de-sac* in this latter case had been open for some time, while the one in the former case had been recently opened. "One may argue that the normal rats had neglected the opening *H* as a visual cue in the course of the long series of trials which was given them in the learning maze from the first, while the recent opening of *B* had attracted their 'visual attention,' and they had learned to utilize it as a visual cue." While admitting the possibility of this, the writers think it improbable, for "if the rats can see the opening *B* so as to react to it, it seems that they ought to be able to see the opening into any alley at the turn and use it as a visual cue." But is it not at least conceivable that a visual cue which is given *before* a turn is reached can be more readily utilized by so rapidly moving an animal as the rat, than one which is given only at the instant when the turn must be made?

On the other hand, does a human being regularly use distance sense cues rather than kinesthetic cues in taking up an interrupted series of movements? The reviewer, from experience in playing the piano from memory, has no hesitation in saying that a breakdown in the series of movements can be repaired much better by kinesthetic cues than by distance cues. If the movements have been once really learned, that is, if one movement has come to set off the next directly, the best way of putting oneself right after a mistake is not to look at the hands, but to start at an earlier point in the series and run through the movements again, looking away or closing the eyes. In other words, the behavior of the human being best known to the reviewer is precisely like the rat's in securing orientation. And if a human being traversing a labyrinth and missing the path would be more likely than a rat to seek for a distance cue, is not this because movements of traversing a labyrinth would in a human being be too slowly made ever to become perfectly automatic? Any series of movements performed as rapidly by a human being as those of scampering through a maze are by a rat—for example, the movements in an intricate dancing step—would be most readily corrected by the use of kinesthetic rather than distance cues.

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Concerning the Intelligence of Raccoons. L. W. COLE. *Journal of Comparative Neurology and Psychology,* Vol. XVII., No. 3, 1907. Pp. 211–261.

In his study of the raccoon Professor Cole presents the results of one of the earliest series of experiments on the mental life of the plantigrades. The author had six young animals under observation, four males and two females. The experiments covered a period of eleven months, beginning with the animals when about eight weeks old.

He takes as his criterion of intelligence the ability of the animal to make new adjustments, or modify old ones, in accordance with the results of its individual experience. The apparatus used was that of Thorndike and Kinnaman, with slight variations. This was supplemented in discrimination experiments by a card showing device original with the author. The motives for learning under experimental conditions are assigned as hunger, an apparent desire to be occupied, and loneliness. The author concedes the "trial and error type" of learning, but thinks he finds ground for the presence of distinct memory images, including memory of the difficulty of locking devices. So-called "play trials" appeared, in which, after loosening the fastenings and escaping from the box, the animal refused to take food.

In the rapidity of forming associations with single fastenings, the raccoon is classed above Thorndike's cats and next to the monkeys. The time records show greater and more numerous variations, however, than in the case of either cats or monkeys. "All the raccoons showed a tendency to abbreviate their acts," which seems to the author to require for its explanation the presence of either an image or notion. Some would probably differ with Professor Cole at this point. The limit of memory for the most complex associations is placed at 147 days. In the opinion of the reviewer this is much too short for adult animals, his own results fixing the limit as above 250 days.

In tests for visual discrimination, the author found ability to distinguish color, but is quite ready to concede that this may be and probably is rather a discrimination of brightness. Experiments with form and size gave high percentages of right choices, the animal becoming practically perfect in performance in less than 250 trials. A high degree of ability to discriminate the pitch of sounds was also developed.

Professor Cole made rather extended repetitions of the putting-through experiments of Thorndike. He concludes, on the contrary, that "putting through after failure certainly and always results in making the next trial a success, but does not have nearly as much stamping-in power as a self-innervated movement. Further, if the act which the animal is put through is the one which will remain the easiest and most convenient for him throughout the tests, irrespective of his position in the box, he will never vary from it." In cases where no order for the performance of acts is determined the raccoon was never able to mechanize into a settled routine. The author argues that the ability to learn by being put through gives strong experimental evidence of the presence of ideas. "It seems to me," he says, "that animals which are utterly unable to learn save by

innervating their own muscles must be devoid of ideas." Professor Cole also attributes to his raccoons the ability to perform a "species of counting," which appeared in experiments involving the display of color cards in twos and threes.

By way of summary the author makes the following statements:

1. "In the rapidity with which it forms associations the raccoon seems to stand almost midway between the monkey and the cat. In the complexity of the association it is able to form it stands nearer the monkey."

2. "Long practiced motor associations show a good degree of permanence."

3. "The raccoon discriminates form, sizes, and tones. It also discriminates cards of different colors and intensities."

4. "I have no evidence that the raccoon imitates its fellows."

5. "The raccoon learns various acts from being put through them, and thus gives evidence of the presence of visual images."

Since the present paper is considered by the author as preliminary in character, we are led to expect that at some future time more extended experimental data will be offered in support of his contention that the raccoon can count and give evidence of mental imagery. It is not impossible that the apparent counting ability may find similar explanation to that given by Professor Pfungst in his study of "Kluge Hans," the young stallion of Berlin. It is rather unfortunate that Professor Cole should have confined his entire paper to the results of his laboratory experiments, in view of the fact that he also had many observations on the development of instincts in the young animals during the period of the first twelve months, which marks the stay of the young with the mother. Data have been given, however, which offer ground for comparison with those from experiments on other animals under similar conditions, which was the limit set for the study.

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JOURNALS AND NEW BOOKS

REVUE DE METAPHYSIQUE ET DE MORALE. March, 1908. *Le Dieu de Spinoza* (pp. 129–163): V. BROCHARD. – There is no real difference between the concept of God in Spinoza's "Ethics" and that in the "Tractatus Theologico-Politicus." *Du rôle de la logique dans la formation scientifique du droit* (pp. 164–189): E. MEYNIAL. – Logically, law appears as the matter of a purely deductive system, but it is also a means of effecting the equilibration of conflicting interests. From the first of these facts it gets its stability, from the second its plasticity and adaptability. *La méthode en chemie* (pp. 190–213): A. JOB. – Chemistry explains species by assemblages of atoms, and metamorphoses by transference of energy, but atoms and energy are not definitive concepts for it. Progress is to be looked for from taking physics for an instrument and guide, and biology for an application and model. *Études critiques: La*

philosophie de Wundt (pp. 214–243): H. NORERO. *Discussions: Réponse à M. Bergson* (pp. 244–245): E. BOREL. *Réponse à M. Bonasse* (pp. 246–247): G. LE BON. *Questions pratiques: Le syndicalisme reformiste* (pp. 248–259): F. CHALLAYE. *Supplément.*

Barrus, Clara. *Nursing the Insane.* New York: The Macmillan Co. 1908. Pp. x + 409. $2.00 *net.*

De Garmo, Charles. *Principles of Secondary Education.* Vol. II: *Processes of Instruction.* New York: The Macmillan Co. 1908. Pp. xi + 200. $1.00 *net.*

Furry, William Davis. *The Esthetic Experience: Its Nature and Function in Epistemology. The Johns Hopkins Studies in Philosophy and Psychology,* No. 1. *Philosophical Monographs* of the *Psychological Review,* Vol. I., No. 1. Pp. xv + 155.

Royce, Josiah. *The Philosophy of Loyalty.* New York: The Macmillan Co. 1908. Pp. xiii + 409. $1.50 *net.*

NOTES AND NEWS

THE sixth congress of psychology will be held at Geneva from August 31 until September 4, 1909. Owing to the great number of papers presented at previous meetings, it is found desirable to limit the discussion to certain problems of current importance, and to require the publication in advance of papers intended for the congress, in order that comment upon them may be adequate and profitable. In particular it is desired that the question of terminology in psychology receive attention, and that equivalent terms in different languages be fixed. Also an exhibition of apparatus is desirable, inasmuch as printed descriptions are far less satisfactory than actual demonstration. The committee for the congress, consisting of Th. Flournoy, president, P. Ladame, vice-president, and Ed. Claparède, general secretary (Champel 11, Geneva), invite suggestions.

WILLISTON S. HOUGH, Ph.M., of the George Washington University, has resigned from the department of philosophy and has been elected professor of psychology and pedagogy.

MR. L. BREBANT, M.A., Oxon., has been appointed assistant to the professor of moral philosophy in the University of St. Andrews.

DR. EDOUARD ZELLER, professor at the University of Berlin from 1872 until 1895, died on March 19, at the age of ninety-four years.

EDWARD ELLIOT RICHARDSON, Ph.D., has been elected instructor in philosophy in the George Washington University.

MR. J. H. WOODS has been promoted at Harvard University to the rank of assistant professor of philosophy.